

**Appendix G:
Heritage Technical Report**



**Technical Report on Heritage
Resources Impact Assessment at
Sylvia Lake (Manitoba Heritage
Permit A36-10)**

Final Report
Stantec Consulting Ltd.
October 2010

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1.0 Introduction

The following technical report summarizes the study area, methods, results, key observations and conclusions of the heritage resources impact survey for the proposed Tim Horton Children's Foundation camp development in Whiteshell Provincial Park in Manitoba. The assessment was conducted on August 18 and 19, 2010, to ascertain the nature and extent of any intact heritage resources in the study area.

2.0 Study Area

The study area is located in the Lake of the Woods ecoregion of the Boreal Shield Ecozone (Ecological Stratification Working Group: 1996). This ecoregion extends from the south end of Lake Winnipeg to the east side of Rainy Lake on the Canada-United States border. It is marked by warm summers and cold winters with the mean annual temperature approximately 1.5°C. The mean summer temperature is 15°C, while the mean winter temperature is -13°C. The mean annual precipitation is approximately 500 mm. Characteristic vegetation includes a succession from trembling aspen, paper birch, and jack pine to white spruce, black spruce, and balsam fir. The specific study area also includes open grassed meadows with mixed stands of emergent and mature trembling aspen.

The ecoregion is underlain by massive, crystalline, acidic, Archean bedrock, forming hummocky, broadly sloping uplands and lowlands. Lacustrine deposits forming level to undulating clay plains occur in lowlands. The ecoregion is also interspersed with areas of fluvioglacial outwash deposits. Bare rock outcrops are common, particularly in close proximity to the lakeshore.

Characteristic wildlife includes moose, black bear, wolf, lynx, snowshoe hare, and woodchuck. Bird species include ruffed grouse, hooded merganser, pileated woodpecker, bald eagle, turkey vulture, herring gull, and waterfowl.

Soils of the study region consist of the Indian Bay Complex in the northern portion of the study area and Pine Valley Till in the southern (Smith and Ehrlich 1967). The Indian Bay Complex consists of approximately 75% granitoid rock outcrop, 10% of well to imperfectly drained Grey Wooded and Podzol soils and 15% of very poorly drained Humic Gleysol, Gleysol, Eluviated Gleysol, Shallow and Deep Peat soils (Smith and Ehrlich 1967:54). Most of the mineral soils in this complex have been developed on lacustrine clay deposits and thin lacustrine clay over a stony till. Some have been derived from acidic granitoid rock and are extremely stony. The topography varies from irregular gently sloping to steeply sloping.

The Pine Valley series are imperfectly drained Gleyed Dark Grey Wooded soils developed on moderately to strongly calcareous lacustrine clay deposits (Smith and Ehrlich 1967:74). These deposits are frequently underlain by a very strongly calcareous glacial till substrate within 0.80 m of the surface. The terrain on which soils occur is usually level to irregular, very gently sloping. Scattered surface stones occur in areas of the till substrate phase. For Pine Valley soils that have a very strongly calcareous, stony, glacial till, the depth of clay to the underlying till varies on average from 0.60 to 0.75 m.

3.0 Methods

Assessment methods to complete the heritage resource impact assessment were derived from predictive modeling and from known locations of previously recorded archaeological sites. Predictive modeling relies on either inductive or deductive logic and requires the researcher to think like past resource users in terms of where and how they would conduct their adaptive strategies and daily activities (Hamilton *et al.* 1994). Archaeological predictive modeling studies for the boreal forest were initiated in Manitoba (Ebert 2002), northwest Ontario (Hamilton and Larcombe 1994) and northern Saskatchewan (Gibson and McKeand 1996). Most of these studies used computer enhanced modeling, which makes use of statistical methods to discover associations between archaeological sites and the physical environment (Dalla Bona 1994). It has been demonstrated in the boreal forest of Manitoba that the most important proxy variables that determine high archaeological site potential are distance to water, slope, and vista (Ebert 2002). Proxy variables used for the Thunder Bay area included soils, landforms, topography, drainage, slope, aspect and proximity to water.

Predictive modeling does not always apply to certain site types. Butchering sites, which involve the initial processing of the animal, are usually predicated on the location where a kill has occurred. Generally, these sites are randomly distributed, occupied for a short time and are seldom extensive either horizontally or vertically.

Soil types are important considerations regarding locations where certain activities would be conducted by past populations, particularly during the summer months. Soil type during the winter would not be as important as, conceivably, the ground would be frozen and covered with snow. Given the basic categories, or types, of soils, it is probable that sands, silts and clays would be best preferred habitation sites, while excessively stony sites or locales with large boulders would be avoided.

The boreal forest could be considered to have a highly variable landscape. Landforms and general topography influenced people's movements, faunal forage habits and settlement patterns. Landforms such as raised beaches, deltas, eskers, and lacustrine plains are usually the most common areas where past populations would locate their settlements and camps. Rocky landforms would be generally less selected than those tending toward sands/gravels. Low-lying or marshy areas are often selected as kill sites as game can be mired in the wet clay and harvested. Elevated areas would be less likely to have been accessed given the energy required to scale and descend appreciable heights. Areas selected for rock art usually consist of flat rock surfaces that could be reached by an individual either sitting in a canoe or standing on some type of scaffolding.

Ground slope is another variable that would have been considered by past hunters and gatherers with regard to choices regarding daily activities. Archaeological predictive models generally consider a slope of 0 to 10° as the optimum range for habitation sites.

Site aspect, or the direction that the ground surface faces, is an important factor for activity location. Most of the variables discussed thus far pertain to the selection of activity areas during the summer. However, aspect would have been a major consideration in winter. The winds blow predominantly from the north during the winter and, therefore, it is logical that most winter encampments would be at the base of a south-facing slope and would therefore be protected from the winds. Furthermore, areas receiving maximum exposure to the sun would also be preferential in the winter. Therefore, locations with a south, southeast or southwest aspect would be considered as winter habitation areas rather than those locations that faced north, northwest or northeast.

Distance to water is probably the most important site determining factor within the predictive model for the Boreal Forest. Furthermore, locating activities closer to larger bodies of water is preferable to locating activities near smaller bodies of water. The importance of water is reflected in its use for transportation, harvestable resources, subsistence, and in the integral role it plays for most of the various orders within the life chain cycle. In general, a distance of 0 to approximately 100 m from water is considered as a high potential area for heritage resources. A distance of approximately 100 to 200 m away is of moderate potential, while over 200 m has a low potential.

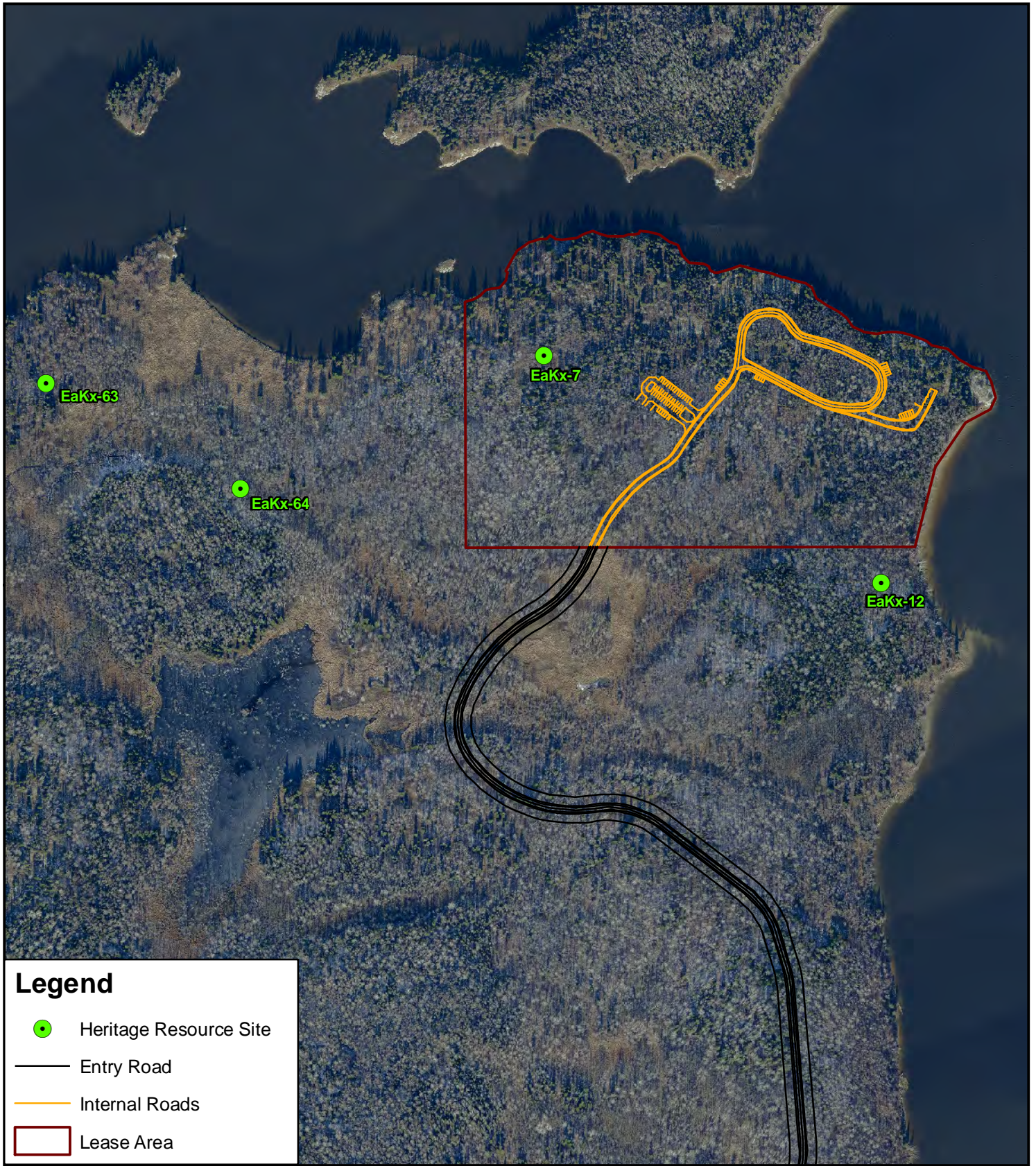
3.1 DESKTOP ASSESSMENT

The desktop assessment consisted of examining the locations of previously recorded heritage resources to gain a perspective of the chronological range of sites that have been found in the general area and site location relative to the shoreline or riverbank. A list of previously recorded heritage resources was acquired from Provincial Heritage Registry Services, Historic Resources Branch, Manitoba Culture, Heritage and Tourism. Figure 3-1 shows the location of previously recorded heritage resources within the study area, including four either within or adjacent to the proposed camp.





As well, any published monographs detailing previous archaeological research in the general study area were also reviewed. A brief summary of chronological periods in Manitoba based on technology is presented in Table 3-1.

The majority of the previously recorded sites were identified during surveys conducted by the Historic Resources Branch in 1980 and 1981 (Buchner 1982). In 1979, Manitoba Hydro announced that water levels on the forebays of Great Falls and Seven Sisters dams would be lowered to facilitate maintenance and repairs to the installations. The possibility of a lower water regime was the main impetus for the survey on the Winnipeg River at that time.

Two archaeological sites were recorded within the study area and two were found immediately west of the study area. EaKx-12 consisted of an isolated find, a jasper biface, along a long sandy beach on the east side of the development south of the proposed swimming cove. EaKx-7 and EaKx-63 were poorly recorded sites that contained unidentified isolated finds along the riverbank. EaKx-64 consisted of a collection of several pottery sherds diagnostic of the Laurel



Legend

-  Heritage Resource Site
-  Entry Road
-  Internal Roads
-  Lease Area



Previously Recorded Heritage Resources in the Sylvia Lake Study Area




NORTH

0 25 50 100 150

Metres

*Acknowledgements:
Data provided by ATLAS Geomatics (Imagery),
Manitoba Culture Heritage and Tourism, Historic
Resources Branch (Heritage Resource Sites) and
THCF (project lease area and proposed road)
Projection: NAD83 Zone 14N*

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**TECHNICAL REPORT ON HERITAGE RESOURCES IMPACT ASSESSMENT AT SYLVIA LAKE
(MANITOBA HERITAGE PERMIT A36-10)**

Methods

October 18, 2010

phase of the Late Precontact Period. These artifacts were also collected along the riverbank near the water's edge.

Table 3-1: Archaeological Time Periods Based on Technology		
Archaeological Period	Technology	
	Container Type	Food Procurement
Late Historic (ca. 130 – 70 B.P.)	Porcelain Tableware Earthenware Dinnerware Stoneware Storage Jars Tin Cans	Repeating Rifles Automatic Shotguns
Middle Historic (ca. 179 – 130 B.P.)	Earthenware Dinnerware Stoneware Storage Jars Copper Pots/Kettles	Breach Loading Rifles/Shotguns Percussion Cap Muskets
Early Historic (ca. 360 – 179 B.P.)	Copper Pots/Kettles	Flintlock Muskets/Shotguns Metal Traps Projectile Points Metal Side-notched
Late Precontact (ca. 2500 - 360 B.P.)	Clay Vessels: <ul style="list-style-type: none"> • Selkirk (Late Woodland) • Blackduck (Late Woodland) • Laurel (Early Woodland) 	Bow and Arrow Bone Harpoons Nets Projectile Points Side-notched Eastern and Plains Triangular
Middle Precontact (ca. 6500 - 2500 B.P.)	Fiber Baskets/Bags Animal Viscera/Hide	Atlatl Bone Harpoons Nets? Projectile Points Shield Archaic Old Copper
Early Precontact (ca. 9500 – 6500 B.P.)	Fiber Baskets/Bags Animal Viscera/Hide	Spears/Bone Harpoons Lanceolate Projectile Points Trihedral Adzes Lakehead Complex Agate Basin Plano

3.2 FIELD ASSESSMENT

The field assessment was completed on August 18 and 19, 2010. Due to heavy rains during the weeks preceding the assessment, water levels on the Winnipeg River and Sylvia Lake were elevated and no shoreline at the immediate water's edge was available for examination. Field methods consisted of:

- Revisiting the locations of previously recorded heritage resources within or immediately to the study area and shovel testing to determine if additional and/or intact heritage objects were present.
- A pedestrian survey and random shovel testing program along the shoreline of Sylvia Lake and the Winnipeg River riverbank to determine if intact heritage resources were present in areas that, based on predictive modeling, were considered High Heritage Potential.
- Pedestrian surveys and random shovel testing throughout the various proposed areas of development within the camp that, based on predictive modeling, were considered to be of Moderate to Low Heritage Potential.

Shovel tests measured an average of 0.50 m x 0.50 m and were excavated to the top of the BC-horizon, the C-horizon or to bedrock. Data recorded for each shovel test consisted of distance to water, standing vegetation, ground vegetation and soil lithography.

4.0 Results

4.1 PREVIOUSLY RECORDED HERITAGE RESOURCES

Surface examination along the present shoreline or riverbank (Figure 4-1), such as it was given the high water levels as of August 2010, recovered no additional heritage resources. Testing along the terrace above the locations of previously recorded archaeological sites also produced no additional heritage resources. Given the fact that these sites were recorded when water levels were considerably lower, there is the potential that these sites are all now underwater.

4.2 SHORELINE/RIVERBANK PEDESTRIAN TRANSECTS AND SHOVEL TESTING

The shoreline pedestrian survey noted several recent fire pits and one location that evidenced a recent camping site. A considerable portion of the shoreline, particularly along the northeastern portion of the study area was discontinuous bedrock outcrops. Testing in close proximity to the water's edge indicated that there was between 0.30 to 0.50 m of clay over the bedrock. Neither artifacts nor soil strata indicative of past cultural activity were exposed in the shovel tests.

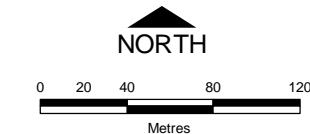
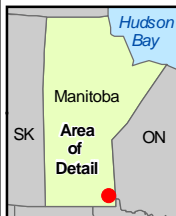
4.3 INTERIOR AREA PEDESTRIAN TRANSECTS AND SHOVEL TESTING

Areas of specific development, such as parking areas, washrooms, septic fields, the soccer field, etc. were examined by both pedestrian survey and random shovel testing. These areas are well removed from the water's edge and, therefore, were in areas of Low to Moderate Heritage Potential. No heritage resources were recovered in any of the shovel tests which confirmed the low potential for this area.

A large meadow was also examined as this was reportedly cleared for agricultural use in the recent past. There has been some aspen regeneration in this area as evidenced by small saplings throughout the meadow. Surface reconnaissance and shovel testing revealed no evidence of any related farmstead buildings or activity areas.



Shovel Test Pit Locations



Acknowledgements:
 Data provided by ATLAS Geomatics (Imagery),
 Stantec (Test Pits) and THCF
 (project lease area and proposed road)
 Projection: NAD83 Zone 14N

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5.0 Key Observations

The majority of the development will occur in areas that predictive modeling indicates as Low to Moderate potential. The swimming area and boat cove phases of the development are in close proximity to the shoreline but testing at these locations did not recover any heritage resources. There is a potential for development in the shallows of the lake to impact heritage resources but these materials would no longer be in situ and would have been removed from original context either by erosion or ice scouring.

There is the potential for small isolated sites to be present well-removed from the lakeshore and riverbank, which would relate to the likelihood of historic hunting and gathering forays by small groups from their encampment nearer the water. These sites would be extremely small horizontally and would not be expansive vertically.

6.0 Conclusions

The heritage resources impact assessment of the proposed Tim Horton Children's Foundation camp development recorded neither intact cultural material nor soil strata indicative of past cultural activity. Given that the majority of the camp development is more than 100 m from either the shoreline or the riverbank, there is a Low potential for significant heritage resources to be impacted.

7.0 Closure

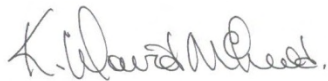
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The information and conclusions contained in this report are based upon work undertaken by trained professional and technical staff in accordance with generally accepted scientific practices current at the time the work was performed. The conclusions and recommendations presented represent the best judgment of Stantec Consulting Ltd. based on the data obtained from the work and on the site conditions encountered at the time the work was performed at the specific sampling, testing, and/or observation locations.

This report was prepared by K. David McLeod, and was reviewed by L.J. Butch Amundson.

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